=> d his

```
   (FILE 'HOME' ENTERED AT 13:33:37 ON 20 MAY 2003)
   FILE 'CA' ENTERED AT 13:33:46 ON 20 MAY 2003
L1   16597 S (ADDITION OR DILUTION OR SUBTRACT?)(4A)(SUCCESSIVE? OR SERIAL? OR
            INCREMENT? OR MULTIPLE OR PLURAL? OR SERIES OR STEPWISE OR STEP WISE
            OR REPEAT? OR ITERAT? OR SEQUENTIAL? OR PROGRESSIVE? OR CONSECUTIVE?)
L2  278610 S (TEMPERATURE OR CONCENTRAT? OR COMPOSITION)(4A)(DEPENDENT OR
            DEPENDANT OR FUNCTION)
L3     281 S L1 AND L2
L4      75 S L3 AND(AUTOMAT? OR PLOT? OR GRAPH? OR DIAGRAM? OR MODEL? OR
            SYSTEMATIC OR EMPERICAL)
L5     162 S L1 AND (PHASE OR TURBID?)(6A)(DETERMIN? OR DETECT? OR MEASUR? OR
            MONITOR? OR MODEL?)
L6      61 S L5 AND(AUTOMAT? OR PLOT? OR GRAPH? OR DIAGRAM? OR MODEL? OR
            SYSTEMATIC OR EMPERICAL)
L7   30289 S (DEPENDENT OR DEPENDANT OR INDEPENDENT OR INDEPENDANT)(4A)(VARIABLE
            OR FACTOR)
L8      28 S L1 AND L7
L9    2018 S L2 AND L7
L10    130 S TEMPERATURE(6A)L7 AND(CONCENTRAT? OR COMPOSITION)(6A)L7
L11   8196 S TEMPERATURE(6A)(VARY? OR CHANG?) AND(CONCENTRAT? OR COMPOSITION)(6A)
            (VARY OR CHANG?)
L12    208 S L11 AND (PHASE OR TURBID?)(6A)(DETERMIN? OR DETECT? OR MEASUR? OR
        MONITOR? OR MODEL?)
L13      1 S L1 AND L12
L14    116 S L12 AND(AUTOMAT? OR PLOT? OR GRAPH? OR DIAGRAM? OR MODEL? OR
            SYSTEMATIC OR EMPERICAL)
L15     50 S L10 AND(AUTOMAT? OR PLOT? OR GRAPH? OR DIAGRAM? OR MODEL? OR
            SYSTEMATIC OR EMPERICAL)
L16    327 S L4,L6,L8,L13-15
L17     80 S L10 NOT L16
L18     10 S L17 AND(DIELECTRIC OR EQUILIBRIA)
L19    257 S L16,L18 NOT PY>1998
L20      2 S L16,L18 NOT L19 AND PATENT/DT
L21    259 S L19-20
L22    251 S L21 NOT GRAPHITE
         E SKOLD R/AU
L23     23 S E3-4,E6-7
         E SKOELD R/AU
L24     33 S E3-7
L25     56 S L23-24
L26     15 S L25 AND TEMPERATURE
```

=> d bib,ab 1-251 122

AN   128:184970 CA
TI   Effect of temperature on the phase behavior of ionic-nonionic
      microemulsions
AU   Aramaki, Kenji; Ozawa, Kazuyo; Kunieda, Hironobu
CS   Grad. School Engineering, Yokohama National Univ., Yokohama, 240, Japan
SO   Journal of Colloid and Interface Science (1997), 196(1), 74-78

AB   Microemulsions are formed over a wide range of temps. in brine/sodium
      dodecyl sulfate/polyoxyethylene dodecyl ether (C12EO2 or C12EO3)/decane
      systems. In a dil. region, lamellar liq. crystal is present instead of
      bicontinuous microemulsion at the compn. at which the HLB of the mixed
      surfactant is optimum in the given system. The monomeric solubilities of

C12EO2 or C12EO3 in oil and the mixing fraction of C12EO2 or C12EO3 in the mixed surfactant layer were detd. using the geometrical relation of three-phase tie triangle contg. the liq. crystal phase in the compn. tetrahedron and were compared at 35 and 60°C. The change in the HLB compn. with temp. is well described by increasing the monomeric soly. and decreasing the mixing fraction of nonionic surfactant in the surfactant layer. As a result, temp.-insensitive microemulsions are formed in the SDS-C12EO3 system.

L22 ANSWER 41 OF 251 CA COPYRIGHT 2003 ACS
AN 126:285690 CA
TI Smectic compressibility of polymer-containing lyotropic lamellar phases: an experimental tool to study the thermodynamics of polymer confinement
AU Ligoure, C.; Bouglet, G.; Porte, G.; Diat, O.
CS Groupe de Dynamique des Phases Condensees C.C.26, Universite Montpellier II, Montpellier, 34095, Fr.
SO Journal de Physique II (1997), 7(3), 473-491
AB The authors study a mixed amphiphilic system formed from a brine swollen surfactant lamellar phase in between the bilayers of which is incorporated a neutral water-sol. nonadsorbing polymer: polyvinylpyrolidone (PVP) with a very large mol. wt. This system allows an exptl. realization of the various regimes of polymer confinement within infinite slits. The presence of polymer will induce a new effective interaction between the bilayers which depends on the confinement regime of the macromol. soln. The authors calc. the contribution of this polymer mediated interaction to the smectic compressibility in the four expected regimes of polymer confinement and show that it is a non monotonic function of the polymer concn. This smectic compressibility is of particular interest because it can be readily derived from small angle scattering measurements. The authors' model allows a quant. interpretation of the crit. L.alpha./L.alpha. phase sepn. which is obsd. upon progressive addn. of salt at a particular compn. of the system.

L22 ANSWER 53 OF 251 CA COPYRIGHT 2003 ACS
AN 125:122748 CA
TI Studies of fulvic and humic acids. 1. Determination of the steady states for slow processes in 0.1 M NaCl aqueous solution at 25°C
AU Wahlberg, Olle; Aagren, Staffan
CS Dep. Chem., Royal Inst. Technol., Stockholm, S-100 44, Swed.
SO Acta Chemica Scandinavica (1996), 50(7), 561-566
AB Humic substances in natural waters are dynamic systems. High-precision EMF methods were used to measure pH as a function of time and total concn. of humic substances after sequential addns. of NaOH. After each addn. of base, the time deriv. of pH asymptotically approached a const. value, a steady state. We obsd. phenomena typical for dynamical systems, such as oscillations. The steady-state rates of slow, pH dependent reactions were measured for humic acids extd. from soil for 2.5< pH <8.5 and total concns. of humic substances within 6-116 mg DOC/dm3 and for fulvic acids from a lake water for 2.5< pH <8.5 with 28 mg DOC/dm3 (original sample) and 7 mg DOC/dm3 (dild. sample). Simple models are suggested to explain the observations.

L22 ANSWER 63 OF 251 CA COPYRIGHT 2003 ACS
AN 123:238982 CA
TI Determination of solubility of solid, liquid, or gas solutes in a solvent by isoplethic thermal analysis
IN Berthet, Jacques; Counioux, Jean-Jacques
PA Universite Claude Bernard Lyon I, Fr.

SO   Fr. Demande, 21 pp.
PI   FR 2712090   A1   19950512   FR 1993-13402   19931104
PRAI FR 1993-13402   19931104

AB   For easy construction of a phase diagram, useful for industrial processing, the concn. of a soln. is varied at const. ref. temp. and the thermal effects of the concn. change are detd. to give the temp. change as a function of the concn. (i.e., $\Delta T = f(c)$). The concn. is varied by addn. of solvent, so that $\Delta T = f(V)$ where V is the solvent vol.

AN   123:153488 CA
TI   Self-assembly in double-tailed surfactants in dilute aqueous solutions
AU   Svitova, Tatiana F.; Smirnova, Yulia P.; Pisarev, Sergey A.; Berezina, Nataly A.
CS   Institute of Physical Chemistry, Russian Academy of Sciences, Leninsky prosp., 31, Moscow 117915, GSP-1, Russia
SO   Colloids and Surfaces, A: Physicochemical and Engineering Aspects (1995), 98(1/2), 107-15

AB   The phase behavior and aggregation of dialkyldimethylammonium bromides (alkyl chain lengths 8, 10, 12, 16) in dil. aq. solns. (concns. < 1%) were studied by static light scattering, densitometry, and freeze-fracture electron microscopy. Surface and interfacial tension measurements were performed by drop wt. and spinning drop methods. Phase diagrams detd. for dialkylammonium bromide/H2O systems at 20-60° show 4 areas: (1) mol. soln.; (2) vesicular soln. with small unilamellar vesicles (D = 30-70 nm, depending on the alkyl chain length); (3) a 2-phase region, where 2 populations of aggregates coexist (small vesicles and large liposomes); (4) a random lamellar L3 phase. It is important to note that vesicle and liposome formation occurred spontaneously on consecutive dilns. of the L3 phase. Surface and interfacial tension measurements show that aggregation in the bulk solns. are accompanied by unusually sharp decreases of the surface and interfacial tensions; the tension at the L3 phase/octane interface drops to an ultralow value (0.01 mN m-1). Langmuir balance studies of diC12 deriv. and diC16 deriv. monolayers on the aq. subphase were performed, and some hysteresis in the compression-decompression cycles was obsd. (probably due to partial dissoln. of amphiphiles). The min. area per surfactant mol. in the condensed monolayers is independent of the alkyl chain length (68 Å2). The structural transformation vesicles/large liposomes/lamellar phase is illustrated by electron micrographs.

AN   122:264824 CA
TI   A study of the effect of solvent composition on the acidity function Ho
AU   Mallah, N. M. El
CS   Faculty Science, Alexandria University, Alexandria, Egypt
SO   Alexandria Engineering Journal (1995), 34(1), D1-D8

AB   A spectrophotometric method was used to det. the dissocn. const. of P-nitronaphthylamine indicator in acetamide-water, and propionamide-water mixts. at 25°C. The pKa values, calcd. by a stepwise comparison method, were found to decrease with increasing the org. solvent water ration. The addn. of the org. solvent component increases the basicity of water due to the progressive breakdown of the tetrahedral structure of water [1]. Thus, instead of having only the structure H+(H2O)4, one may also have the structure H+(H2O)2, since the affinity in the open structure is less than in the compact structure in which the proton becomes more firmly bound. The free energies of transfer Δ Got(H+) were calcd. for the transfer of the solvated proton from water to aq. acetamide (Ac) or aq. propionamide (Pr). In this system, the acidity function of hydrochloric acid solns. was found

to increase with increasing the org. solvent component. The partition of the proton between H2O and the org. solvent was calcd. in both water-rich and solvent-rich mixts. In water-rich solvent mixts., the equil. A, H3O+ + solvent (S) ⇌ HS+ + H2O, is shifted to the right, and applies successfully up to 30 wt % solvent. Plots of Ho +log [HCl] against the solvent compn. ratio [S]/[H2O] are straight lines in all cases with slopes equal to K'1/2.3. The values of the equil. const. K'1 amt. to 14.95 and 19.55 for the H2O-Ac and H2O-pr solvent systems, resp. In the org. solvent rich system (>40 wt % solvent), the equil. A is shifted to the left. The value of the equil. const. K'2 amts. to 0.207 for Ac-H2O. With known values of K'1 and K'2, it is possible to calc. [H3O+] and [HS+] in any solvent system. Such calcns. show that, at a fixed acid concn., [H3O+] decreases with progressive addn. of solvent, while the [HS+] values show an increase.

L22   ANSWER 71 OF 251   CA   COPYRIGHT 2003 ACS
AN   121:264343   CA
TI   Ribbon phases in surfactant systems. Comparisons between exptl. results and predictions of a theoretical model
AU   Hagslaett, Haakan; Soederman, Olle; Joensson, Bengt
CS   Univ. Lund, Lund, S-221, Swed.
SO   Liquid Crystals (1994), 17(2), 157-77
AB   Ribbon phases consist of long cylindrical aggregates that have non-circular normal sections. The authors have recently pointed out that scattering data for a large no. of different intermediate ribbon phases of lower than hexagonal symmetry found in ionic surfactant systems indicate that these phases have a structure possessing a central rectangular symmetry. The aggregate dimensions are reported for phases with cylindrical aggregates (i.e., the hexagonal phases and the centered rectangular ribbon phases). Previously published phase diagrams and SAXS, SANS, and 2H NMR data for these phases in different systems were used for this purpose. The results indicate that the axial ratios of the aggregates increase when the temp. decreases, when the surfactant concn. increases, and when the av. surfactant charge decreases. Models that semi-quant. describe the thermodn. of the micellar, hexagonal, and lamellar phases (which are based on the Poisson-Boltzmann cell model approach) have been presented previously in the literature. The authors extend these models to treat also the ribbon phases. The results from the calcns. show the same trends with respect to changes in the dimensions of the non-circular aggregates upon changes in temp., surfactant concn., and av. surfactant charge, as those obtained exptl. Theor. calcd. phase diagrams with ribbon phases are also presented. Based on the prediction of the model and some previously published exptl. data for hexagonal phases, the formation of non-circular, cylindrical aggregates is a general property of single-chain, ionic surfactant/H2O systems, and that these aggregates in general pack on hexagonal lattices. The normal sections of these aggregates are circular on av., on account of the fact that the degree of deformation and the orientation of deformation changes along the axis of the aggregates and with time. Only for some systems, temps. and surfactant concns. do the sym. aggregates line up and ribbon phases with central rectangular symmetry are obtained. The driving mechanisms for the transition from the hexagonal phase with asym. (fluctuating) cylinder and further to the centered rectangular phase with asym. (stiff) cylinders is also discussed. This phase transition is the 1st order.

L22   ANSWER 72 OF 251   CA   COPYRIGHT 2003 ACS
AN   121:234994   CA
TI   Activities of nickel, cobalt, and manganese silicates in magmatic liquids and applications to olivine/liquid and to silicate/metal partitioning

AU   Hirschmann, Marc M.; Ghiorso, Mark S.
CS   Dep. Geological Sciences, Univ. Washington, Seattle, WA, 98195, USA
SO   Geochimica et Cosmochimica Acta (1994), 58(19), 4109-26
AB   The activities of NiSi0.5O2, CoSi0.5O2, and MnSi0.5O2 in magmatic liqs.
have been calibrated from exptl. detd. distributions of Ni, Co, and Mn
between olivine and silicate melt. Chem. potentials of these species in
silicate liqs. are extd. from an expression for the chem. potentials of
minor components in olivine and are described by an extension of the
regular soln. model of Ghiorso and Sack (1994). The extended liq. mixing
model, together with the mixing model for multicomponent olivine,
retrieves, olivine/liq. DMol/liq for Ni, Co, and Mn with av. abs. values of
deviations equal to 14%, 13%, and 14%, resp. Partitioning of Ca between
olivine and liq., using previously calibrated chem. potentials of CaMgSiO4
in olivine and CaSiO3 in silicate melt, is reproduced with an av. relative
deviation of 18%. Extrapolation of these models successfully predicts
exptl. detd. partitioning of Ni and Co between olivine and ultramafic liqs.
to >2000°C and 100 kbar, thereby casting doubt on the importance of
pressure-induced coordination changes to the geochem. of Ni and Co under
these conditions. Calcd. partitioning of Ni and Co between silicate liq.
and molten metal indicates that these elements remain markedly siderophile
to temps. greater than 3000 K. Calcns. suggest that the siderophile
behavior of Ni and Co may be reduced by increasing pressure. Forward
modeling of phase equil. and Ni partitioning during crystn. of mafic melts
from Hawaii suggests that the Ni/MgO systematics of Hawaiian basaltic
glasses are consistent with a parental liq. having 17% MgO and 760 ppm Ni.
Activity coeffs. of NiSi0.5O0.2, and MnSi0.5O2 in natural magmas are
generally greater than unity, owing in a large part to pos. energetic
interactions between transition metals and SiO2. The primary detg.
compositional variable for these liq. activity coeffs. and partition
coeffs. is molar silica content. The effects of changing temp. and liq.
compn. on olivine/liq. partitioning of Ni, Co, and Mn are comparable and
complementary, leading to more compatible behavior at lower temps. and in
more evolved liqs. Activity coeffs. are greatest for NiSi0.5O2, and
smaller for CoSi0.5O2 and MnSi0.5O2. Compositional variation of
mineral/liq. partitioning and of activity coeffs. owing to interactions
with SiO2 are likely to be important for many other trace elements.

TI   Phase behavior and HLB temperature of a nonionic surfactant with
      polydisperse poly(oxyethylene) chains
AU   Muto, Masakazu; Naito, Noboru; Kunieda, Hironobu
CS   KOSE Cosmetic Laboratorie, Tokyo, 114, Japan
SO   Yukagaku (1994), 43(6), 502-9
AB   The phase behavior and HLB (hydrophilic-lipophilic balance, three-phase)
temp. of com. poly(oxyethylene) nonionic surfactant were studied. HLB
temp. of polydisperse poly(oxyethylene) nonionic surfactants shifted toward
higher temp. with decreasing surfactant concn. and/or water/oil ratio due
to differences in monodisperse solubilities (Si) of the surfactant in the
excess oil phase. The relation between Si and surfactant compn. in the
surfactant phase (Sis) at the water-oil interface within the surfactant
phase (middle-phase microemulsion) was detd. based on the geometrical
relation in phase equil. Si of the hydrophilic surfactant increased with
temp. but decreased for the hydrophobic surfactant. Most com. surfactants
contain non-reactive alc. and the distribution of hydrophilic chains is
quite broad. Total monodisperse solubilities in oil (ΣSi) is thus quite
large and HLB temp. changes considerably with surfactant concn. or
water/oil ratio. For a long hydrocarbon-chain surfactant system, elec.

cond. is useful for detecting HLB temp. applicable to phase study.

L22   ANSWER 91 OF 251   CA   COPYRIGHT 2003 ACS
AN   120:31885   CA
TI   Viscosity of critical mixtures: isopycnic polymer blends
AU   Cerny, L. C.; Cerny, E. L.; Sutter, J. K.; Czerniawski, D.
CS   Utica Coll. Syracuse Univ., Utica, NY, 13502, USA
SO   Journal of Rheology (New York, NY, United States) (1991), 35(4), 525-37
AB   In many multicomponent systems, a transition from a single phase of uniform
      compn. to a multiphase state with sepd. regions of different compn. can be
      induced by changes in temp. and shear. The d. difference between the phase
      and thermal and/or shear gradients within the system results in buoyancy
      driven convection. These differences affect kinetics of the phase sepn. if
      the system has a sufficiently low viscosity. This investigation presents
      more preliminary developments of a theor. model in order to describe
      effects of the buoyancy-driven convection in phase sepn. kinetics. Polymer
      solns. were employed as model systems because of the ease with which d.
      differences can be systematically varied and because of the importance of
      phase sepn. in the processing and properties of polymeric materials.
      Isopycnic polymer solns. were used to det. the viscosity and d. difference
      limits for polymer phase sepn. From these methods, the polymer-polymer
      interactions in a θ solvent can be examd. The rheol. measurements were
      extended to detect the phase sepn. and to define the crit. temp.

L22   ANSWER 96 OF 251   CA   COPYRIGHT 2003 ACS
AN   119:227105   CA
TI   Viscoelastic properties of dodecane/polystyrene systems
AU   Kim, Dukjoon; Caruthers, James M.; Peppas, Nikolaos, A.
CS   Sch. Chem. Eng., Purdue Univ., West Lafayette, IN, 47907-1283, USA
SO   Polymer (1993), 34(17), 3638-47
AB   Complex mech. properties of dodecane (I)-polystyrene systems were studied.
      The temp. and frequency dependence of the shear modulus was studied for
      various samples contg. different amts. of I. Addn. of I lowered the temp.
      at which mech. transitions occurred and broadened the transition region.
      The modulus decreased with increasing I content. The temp. and concn.
      dependences of the shift factor were detd. by time-temp. and time-concn.
      superposition and analyzed by a free-vol. model and an entropy model. The
      concn. effect on the temp.- dependent shift factor was validated by an
      entropy model. The frequency-dependent complex moduli master curves exptl.
      detd. were converted to a discrete relaxation time spectrum; subsequently,
      the time-dependent material function could be detd. from the relaxation
      spectrum. The relaxation spectrum shifted significantly to shorter times
      with increasing concn. of I.

L22   ANSWER 106 OF 251   CA   COPYRIGHT 2003 ACS
AN   117:252272   CA
TI   Aggregation behavior of Pluronic P-94 in water
AU   Bahadur, P.; Pandya, K.
CS   Dep. Chem., South Gujarat Univ., Surat, 395 007, India
SO   Langmuir (1992), 8(11), 2666-70
AB   The aggregation behavior of an ethylene oxide (I)-propylene oxide (II)
      triblock copolymer, Pluronic P-94 [I24-II47-I24, mol. wt. = 4600, 40% I
      polymer] in water was examd. using several independent methods. Dynamic
      light scattering studies revealed the existence of micelles (hydrodynamic
      radius Rh ~ 90 Å) along with monomers and clusters (Rh ~ 20 Å and >1000 Å,
      resp.). Only micelles with low polydispersity were seen at high
      temp./concn. While surface tension measurements at 40° gave a crit.
      micelles concn. of ~0.002 wt.% and mol. area at closest packing of 128 Å2,

viscosity results showed that micelles were spherical. Fluorescence spectra of solubilized pyrene confirmed the presence of clusters, which dissolve at high concn./temp. Oscillatory shear measurements and phase diagram showed reversible thermorheol. behavior in concd. solns.: an increase in temp. changes a Newtonian liq. to a solidlike gel which further dissolves at higher temps. This soln. is again gellified with further increase in temp. ultimately leading to phase sepn. at cloud point.

L22 ANSWER 111 OF 251   CA   COPYRIGHT 2003 ACS
AN   116:169370   CA
TI   A quantitative method for assessing bacteriocins and other food antimicrobials by automated turbidimetry
AU   Skytta, E.; Mattila-Sandholm, T.
CS   Food Res. Lab., Tech. Res. Cent. Finland, Espoo, 02151, Finland
SO   Journal of Microbiological Methods (1991), 14(2), 77-88
AB   Automated turbidimetry was used in assessing the antimicrobial efficacy of bacteriocin-like inhibitors produced by Pediococcus damnosus and P. pentosaceus. Four bacterial strains, i.e., Pseudomonas aeruginosa, P. fragi, Salmonella enteritidis, and S. infantis were used as the test organisms. The growth of the test organisms was kinetically monitored throughout the incubation period and various growth curve parameters were used as quant. indicators of growth inhibition. The results obtained in this study showed that a kinetic method based on automated turbidimetry provides a sophisticated tool for the detn. of bacteriocin activity. A no. of growth curve parameters were applicable for the quantification of inhibitory effects. Regression anal. showed that the linear relation between the level values and the log CFU counts was in most cases highly significant. However, the area value after 24 h appeared to describe most effectively the overall inhibitory effects since all the other growth curve parameters were simple end-point values giving information solely at a single point of time. Furthermore, the area redn. rate shown by the subsequent serial dilns. of the tested antimicrobials appeared to provide addnl. data on their antibacterial potency.

L22 ANSWER 112 OF 251   CA   COPYRIGHT 2003 ACS
AN   116:146442   CA
TI   Systematic study on the solubilization of phospholipid vesicles by various surfactants
AU   Inoue, Tohru; Yamahata, Taro; Shimozawa, Ryosuke
CS   Fac. Sci., Fukuoka Univ., Fukuoka, 814-01, Japan
SO   Journal of Colloid and Interface Science (1992), 149(2), 345-58
AB   The solubilization of phospholipid vesicles by surfactants were investigated for systematically selected lipid-surfactant combinations. The solubilization process was followed by the change in 90° scattered-light intensity resulting from the stepwise addn. of surfactant soln. to the vesicle prepn. Two break points appeared in the turbidity curve, which allowed a detn. of the surfactant concns. corresponding to the onset and completion of the solubilization. From the lipid concn. dependence of these crit. surfactant concns., the effective surfactant to lipid molar ratios in the surfactant-satd. lipid bilayer, Rsat, and in the lipid-satd. mixed micelle, Rsol, were estd. according to the three-stage model proposed for the vesicle solubilization. For phosphatidylcholine vesicles, both Rsol and Rsat exhibited no significant dependence on the alkyl chain length and head group type of the surfactants. When the acyl chain length of the lipids was shortened, the Rsol value decreased, while Rsat remained unaltered. For neg. charged phosphatidic acid vesicles, Rsol depended strongly on the head group charge of the surfactants. The evaluation of the solubilizing power of surfactants in terms of Rsol values leads to the

conclusion that the solubilization power for elec. neutral phosphatidylcholine vesicles is primarily detd. by the lipid acyl chain length rather than the alkyl chain length and head group type of the surfactants. The viscosity measurements demonstrated that the rod-like or disk-like mixed micelles initially formed by the lipid solubilization transform to spherical micelles at higher concn. of the surfactants.

L22 ANSWER 124 OF 251 CA COPYRIGHT 2003 ACS
AN   113:24909 CA
TI   Association and surface properties of block-copoly(oxyethylene/oxypropylen e/oxyethylene) L64
AU   Reddy, N. Kausalya; Fordham, Peter J.; Attwood, David; Booth, C.
CS   Dep. Chem., Univ. Manchester, Manchester, M13 9PL, UK
SO   Journal of the Chemical Society, Faraday Transactions (1990), 86(9), 1569-72
AB   The mode of assocn. of a purified sample of oxyethylene-oxypropylene block copolymer (Synperonic L64) in aq. soln. was examd. as a function of temp. and concn. by surface tension and light scattering techniques. The assocn. at 34.5 and 40° is described by a cooperative assocn. model which assumes aggregate growth by stepwise addn. of unimers. Inflections in the curves of surface tension vs. log concn. are consistent with the concns. at which enhanced light scattering is first detectable. Only limited assocn. was detected at 27°.

L22 *ANSWER 141 OF 251* CA COPYRIGHT 2003 ACS
AN   108:44604 CA
TI   Heterogeneous equilibrium in the quinary system sodium chloride-potassium chloride-magnesium chloride-calcium chloride-water in the 0-50°C temperature range
AU   Korin, Eli J.; Roy, Aharon S.
CS   Dep. Chem. Eng., Ben Gurion Univ. Negev, Beer-Sheva, 84105, Israel
SO   Journal of Chemical and Engineering Data (1988), 33(1), 60-4
AB   The quinary system $NaCl-KCl-MgCl_2-CaCl_2-H_2O$ was exptl. investigated in the 0-50° temp. range in a condition of equil. with three solid phases: sodium chloride (NaCl), carnallite ($KCl.cntdot.MgCl_2.cntdot.6H_2O$), and bischofite ($MgCl_2.cntdot.6H_2O$). A correlation was established between the concn. of $MgCl_2$ and the two independent variables, i.e., temp. and $CaCl_2$ concn. The solubilities of NaCl and KCl were found to be low, less than 0.6 wt % NaCl and less than 0.4 wt % KCl.

L22 ANSWER 155 OF 251 CA COPYRIGHT 2003 ACS
AN   101:117819 CA
TI   Thermodynamic properties of binary mixtures containing esters. I. Analysis of the properties of n-alkanoate + n-alkane and n-alkanoate + n-alkanoate mixtures in terms of a quasichemical group-contribution model
AU   Kehiaian, Henry V.; Bravo, Ramon; Barral, Mercedes Pintos; Pazandrade, Maria Inmaculada; Guieu, Raymond; Grolier, Jean Pierre E.
CS   Inst. Topol. Dyn. Syst., Univ. Paris, Paris, 75005, Fr.
SO   Fluid Phase Equilibria (1984), 17(2), 187-216
AB   The thermodn. properties of n-alkanoate + n-alkane and + n-alkanoate binary liq. mixts. were examd. on the basis of the group-surface interaction version of the Guggenheim-Barker (1952) quasichem. pseudolattice theory. All the data available in the literature for liq.-vapor and liq.-liq. equil. and excess enthalpies and activity coeffs. at infinite diln. are taken into consideration. With only 4 alkyl-group increments, in addn. to the 2 group-interaction parameters for Me ethanoate, the model provides a fairly consistent description of the properties of the mixts. as functions of compn., temp. and chain length.

AN   93:234563   CA
TI   Semiquantitative automatic measuring of color intensity or turbidity of a
       liquid solution
PA   Kommandiittiyhtio Finnpipette Osmo A. Suovaniemi, Finland
SO   Fr. Demande, 9 pp.
PI   FR 2435020   A1   19800328   FR 1978-25441   19780829
PRAI   FR 1978-25441   19780829
AB   A new automated method is described for the photometric, semiquant.
       measurement of the appearance or disappearance of a color or turbidity in
       solns. contg. serial dilns. The procedure is useful for serol. and
       immunol. studies and for enzyme immunoassays. The method, which uses a
       photometer in which the light beam is perpendicular to the sample, is based
       on the principle that the absorbance range (e.g. 0-1.0) can be divided into
       equal parts as a function of the no. of tubes contg. serial dilns., 2-10
       equal parts being preferred. Photometric detns. are made successively in
       the absorbance range of each serial diln., and the results for each serial
       diln. are given digitally (e.g. 0-9). The method offers increased
       precision compared to visual detns. The method can be used with a regular
       photometer, or a special photometer can be contracted which gives the
       absorbance in the form of a digit. The method is used for measuring the
       titer of antistreptolysin by detecting the inhibition of erythrocyte
       hemolysis. The results were compared to those obtained by visual detection
       of hemolysis, and they were identical in 96% of the cases.

AN   84:185527   CA
TI   An expedient technique for determining solubility phase boundaries in
       surfactant-water systems
AU   Laughlin, Robert G.
CS   Miami Val. Lab., Procter and Gamble Co., Cincinnati, OH, USA
SO   Journal of Colloid and Interface Science (1976), 55(1), 239-41
AB   A stepwise diln. method is described for detg. soly. limits in
       surfactant-H2O systems. Only 1 g of sample and 1 day are required to
       obtain reliable results. Special problems such as foaming and viscous liq.
       cryst. phases can be dealt with. However, inner transitions involving liq.
       crystals are beyond the scope of this method. Samples are viewed between
       crossed polarizers to det. phase transition temps. on cooling. Aliquots of
       H2O are added and measurements are repeated.

AN   84:131784   CA
TI   Ionic influences on the phase transition of dipalmitoylphosphatidylserine
AU   MacDonald, R. C.; Simon, S. A.; Baer, E.
CS   Dep. Biol. Sci., Northwest. Univ., Evanston, IL, USA
SO   Biochemistry (1976), 15(4), 885-91
AB   The ionization and phase behavior of 1,2-dipalmitoyl-sn-glycero-3-
       phosphoserine were investigated under a variety of conditions by several
       different methods. As measured by turbidity changes, the temp. of the
       crystal-liq. crystal phase transition of this lipid was influenced by pH
       and mono- and divalent cation concns. The pH-transition temp. curve was
       congruent with the curve relating temp. to the degree of ionization of the
       CO2H group of the cryst. form. The transition temp. fell from an upper
       plateau of 72° at low-pH values, where the CO2H group is fully protonated,
       to a lower plateau of 55° at high-pH values, where this group is fully
       ionized. The apparent pK (pH at 50% ionization) of the cryst. form shifted
       from 6.0 to 4.6 to 3.7 with an increase of NaCl concn. from 10-3 to 0.1 to

1.0M, resp. These observations are in accord with a simple theor. anal. that utilizes diffuse double-layer theory and the influence of surface potential on surface concn. of protons. In qual. terms, an increase is electrolyte concn. reduced the surface potential, the result of which was a diminution of the surface-bulk pH difference and a lowering of the apparent pK. Assuming an area of 50 Å^2/mol., the intrinsic pKa of the CO_2H group was 2.7. A 1000-fold change of NaCl concn. produced a very large change in surface potential without influencing the transition temp. of the ionized form of the lipid. The observation, coupled with the correspondence of the transition temp. change with the change of degree of ionization, suggested that intermol. H bonding dets. the way transition temp. changes with pH. The enthalpy of the lipid phase transition fell from ~9 kcal/mole to ~3 kcal/mole as the protonated lipid was converted to the ionized form. Titrns. of the crystal and liq. crystal phases revealed that the apparent pK of the former is 1 unit higher than that of the latter; ~30% of this difference was accounted for by the lower surface charge d. of the latter (larger area/mol.) and the remainder was due to a lower intrinsic pK. As a result of the smaller affinity of the liq. crystal phase for protons, the phase transition was accompanied by a release of protons that was detectable by cond., electrophoretic, and pH measurements. An increase in electrophoretic mobility was assocd. with melting even at high pH values and was not attributed to addnl. ionization of protons but was probably due to hydrodynamic effects. Ca^{2+} and Mg^{2+} bound strongly to phosphatidylserine vesicles, increasing the transition temp. and removing lipid from the phase melting below 72°. As a result of diminished proton competition, the interaction of divalent cations was stronger the higher the pH. Na^+ and K^+ reduced interaction with divalent cations by depressing the surface potential and reducing the surface concn. of the divalent ion.

L22   ANSWER 246 OF 251   CA   COPYRIGHT 2003 ACS
AN   34:9794   CA
OREF 34:1537d-e
TI   Phase-rule behavior of concentrated aqueous systems of a typical colloidal electrolyte-sodium oleate
AU   Vold, Robert D.
SO   J. Phys. Chem. (1939), 43, 1213-31
AB   A preliminary report on the phase-rule behavior of Na oleate and water is presented. Visual observation of the temps. of phase change, dilatometric expts., isothermal vapor pressure detns., phase sepns., and microscopic examn. between crossed Nicols are some of the methods used in this investigation. Data and photomicrographs of various phases are presented. It is found that there are many more phases than had previously been recognized in systems of soap and water. All the equil. are successfully represented on a phase-rule diagram in which the independent variables are temp. and compn.

=> d 126 bib,ab 1-15

L26   ANSWER 2 OF 15   CA   COPYRIGHT 2003 ACS
AN   136:43351   CA
TI   Characterization of Barite Suspensions During Synthesis by Light Scattering
AU   Sun, Zhongxi; Skoeld, Rolf O.
CS   Department of Applied Surface Chemistry, Chalmers University of Technology, Goeteborg, SE-412 96, Swed.
SO   Journal of Colloid and Interface Science (2001), 242(1), 67-74
AB   Barite concn. changes were made by stepwise addn. of Ba dichloride to a disodium sulfate soln. with intermediate temp. scans while light scattering was measured continuously. Comparing with independent particle size

detns., recorded turbidity changes corresponded well to changes in particle concn. and size. In the absence of dispersing agents, light scattering from stirred BaSO4 suspensions at temps. >50° varied in a random fashion, indicating loosely assocd. particle aggregates. With a dispersant an almost linear relation between particle concn. and light scattering was established in a wide temp. range. A nonionic surfactant of the alkyl ethoxylate type and a polyacryl amide were compared with respect to their capacity to stabilize BaSO4 suspension turbidities. Correlations obsd. between particle size and light scattering of the suspension vs. temp. and the relative light scattering stabilizing mechanism of dispersants are discussed. It is inferred that essentially monodisperse barite particles may be produced by pptn. in H2O in the presence of a suitable dispersant. Despite the complexity of the system it was possible, with the new anal. technique, to observe that the nonionic dispersant tested did not significantly affect barite crystal growth, but the polyacryl amide has a pronounced effect on the concn. at which particle formation is 1st obsd. as well as on particle size. (c) 2001 Academic Press.

L26   ANSWER 3 OF 15   CA   COPYRIGHT 2003 ACS
AN   134:299266   CA
TI   Phase and aggregational studies of some inversely soluble aqueous formulations
AU   Misra, S. K.; Skold, R. O.
CS   Department of Applied Surface Chemistry, Chalmers University of Technology, Goeteborg, SE-412 96, Swed.
SO   Colloids and Surfaces, A: Physicochemical and Engineering Aspects (2001), 179(1), 111-124
AB   The effect of component mol. structure, pH, temp. and concn. on phase and aggregational behavior of aq. formulations contg. more than one polydisperse polyglycol ether based compd. was studied. The effect of adding various inversely sol. polymer compds. to base formulations on surface tension, turbidity, cond. and pH over a wide range of temps. and concns. in water was investigated. An instrument, enabling automatic temp. and concn. scans was used for the generation of pH, turbidity and cond. data. The phase behavior of polyalkylene glycol ethers is dramatically changed by the presence of surface active components. The amt. and type of polymer has a small effect on the crit. micelle concn. but is crit. for the phase behavior of the investigated formulations. Mol. wt., hydrophile-lipophile balance as well as cloud point values are important parameters which may be varied widely, and a proper choice of polyalkylene glycol can be used to affect phase sepn. behavior with respect to desired performance in industrial applications, e.g., as lubricants in metalworking fluids.

L26   ANSWER 6 OF 15   CA   COPYRIGHT 2003 ACS
AN   131:20576   CA
TI   Performance and recycling studies of alkaline metal cleaners
AU   Ax, L. C.; Misra, S. K.; Skold, R. O.
CS   Akzo Nobel Surface Chemistry AB, Goeteborg, Swed.
SO   Tenside, Surfactants, Detergents (1999), 36(2), 114-121
AB   An exptl. evaluation of the metal cleaning performance of 4 alk. aq. cleaner formulations and surfactant recovery by membrane filtration from mixts. with model oil contaminants was carried out. An adequate cleaning effect might be combined with good recycling properties. A rapid screening procedure for metal cleaning was combined with a simple colorimetric method and COD anal. for oil removal and surfactant recovery assays, resp. Physicochem. characterization of detergents over a wide range of temps. and concns. showed important differences in phase sepn. and aggregational

behavior and correlations with oil sepn. and surfactant recovery results were inferred.

L26   ANSWER 10 OF 15   CA   COPYRIGHT 2003 ACS
AN   117:236309   CA
TI   Concentration and temperature effects on aggregation, clouding and adsorption of a polydisperse non-ionic surfactant in aqueous solution
AU   Mahdi, Saleh M.; Skoeld, Rolf O.
CS   Dep. Eng. Chem., Chalmers Univ. Technol., Goeteborg, S-412 96, Swed.
SO   Colloids and Surfaces (1992), 66(3), 203-14
AB   Aq. solns. of polyethylene glycol 1-octyl ether with av. d.p. 4.5 were subjected to surface-tension and cloud-point measurements at 26-67°. The former data were used to est. values for the crit. micelle concn., space requirement for surfactants at the air/water interface, and enthalpy and free energy of micellization for the polydisperse surfactant. Derived data compared well with similar data for chem. closely related pure homologs, and this was taken to indicate close to ideal solute-solute interactions. The same solns. were also made the subjects of ultrafiltration using hydrophilic membranes. Temp.-dependent permeation ratios and flux rates suggested the occurrence of adsorption-induced excess permeation of surfactant at elevated temps. below the lower crit. temp. (LCT). Above the LCT, increasing phase sepn. resulted in very low permeation ratios, indicative of low aq. surfactant concn. under phase-sepn. conditions. Results of permeation data for individual homologs were discussed in terms of models for temp.-induced adsorption and were also compared with results using other techniques reported recently in the literature.

=> log y
STN INTERNATIONAL LOGOFF AT 14:08:57 ON 20 MAY 2003